



2020 303(d) List
Responses to Public Comments
Received During the Public Notice Period

Public Notice Period
November 15, 2019 – February 20, 2020

Missouri Department of Natural Resources
Water Protection Program
PO Box 176
Jefferson City, MO 65102-0176
800-361-4827 / 573-751-1300

Introduction

Pursuant to 40 C.F.R. § 130.7, States, Territories, and authorized Tribes must submit biennially to the U.S. Environmental Protection Agency (EPA) a list of water-quality limited (impaired) segments, pollutants causing impairment, and the priority ranking of waters targeted for total maximum daily load (TMDL) development. The Missouri Department of Natural Resources (Department) placed the draft 2020 303(d) List of Impaired Waters on public notice from November 15, 2019, to February 20, 2020. All original comments received during this public notice period are available online on the Department's website at dnr.mo.gov/env/wpp/waterquality/303d/303d.htm. Comments were received from the following groups:

- I. LimnoTech on behalf of the Doe Run Resource Company
- II. Metropolitan St. Louis Sewer District
- III. Missouri Coalition for the Environment
- IV. City of Kansas City
- V. City of Independence
- VI. City of Springfield

This document summarizes and paraphrases the comments received, provides the Department's responses to those comments, and notes any changes made to the final proposed 2020 303(d) List of Impaired Waters or supporting documentation.

Summary of Department actions as a result of public comments

A. Waters to be added or re-added to the Proposed 2020 303(d) List

1. Mazingo Lake (water body identification (WBID) 7402) – Chlorophyll-a

B. Waters Proposed to be Delisted from the 2020 303(d) List

1. Courtois Creek (WBID 1943) – Lead in sediment
2. Indian Creek (WBID 1946) – Lead in sediment
3. Indian Creek (WBID 1946) – Zinc in sediment
4. Indian Creek (WBID 1946) – Lead in water
5. Crooked Creek (WBID 1928) – Cadmium in sediment
6. Crooked Creek (WBID 1928) – Lead in sediment
7. Crooked Creek (WBID 1928) – Cadmium in water
8. Bee Fork (WBID 2760) – Lead in water
9. West Fork Black River (WBID 2755) – Lead in sediment
10. West Fork Black River (WBID 2755) – Nickel in sediment
11. Little Antire Creek (WBID 4115) – *Escherichia coli* (*E. coli*)
12. Brush Creek (WBID 3986) – Polycyclic Aromatic Hydrocarbons (PAHs) in sediment

C. Other changes to the 2020 303(d) List

1. King Lake (WBID 7112) – Chlorophyll-a
 - i. This water will be removed from the list due to all data showing impairment being older than seven years.

Summary of Comments and Department Responses

I. LimnoTech on behalf of the Doe Run Resource Corporation (Doe Run)

LimnoTech requested the reassessment and delisting of multiple streams due to actions that Doe Run has taken in the watersheds of the streams referenced in the comment letter. LimnoTech provided recently collected data showing the effects of the actions taken by Doe Run. Streams referenced for delisting: Courtois Creek (WBID 1943), Indian Creek (WBID 1946), Crooked Creek (WBID 1928), Bee Fork (WBID 2760), and West Fork Black River (WBID 2755). LimnoTech also requested the Department withdraw the TMDLs for Indian Creek and Courtois Creek, or alternatively pursue a permit in lieu of a TMDL.

Summary of actions taken by Doe Run:

1. A treatment plant was constructed at the Doe Run Viburnum facility and began operation in October 2016. The Viburnum facility discharges into Indian Creek and then subsequently into Courtois Creek.
2. Doe Run discharges from Casteel Mine into Crooked Creek were eliminated in May 2014.
3. Doe Run discharges from Buick Resources Recycling Facility (BRRF) into Crooked Creek were eliminated in March 2016.
4. Doe Run eliminated discharges from the Fletcher Mine and Mill facility into Bee Fork.

Department Response

The Department appreciates the comments provided by LimnoTech on behalf of Doe Run. The actions taken by Doe Run have reduced or eliminated pollutant sources within the watersheds of these impaired segments, providing the Department cause to split the data record following these improvements. Therefore, only data collected after the actions taken by Doe Run will be considered as recent and relevant to assessment of designated uses on the streams listed. The data provided demonstrates that water quality standards (WQSs) are now being met; therefore, the Department proposes to delist Courtois Creek (WBID 1943) for lead in sediment, Indian Creek (WBID 1946) for lead in water, Indian Creek (WBID 1946) for lead and zinc in sediment, Crooked Creek (WBID 1928) for cadmium in water and sediment, Crooked Creek (WBID 1928) for lead in sediment, Bee Fork (WBID 2760) for lead in water, and West Fork Black River (WBID 2755) for lead and nickel in sediment. Indian Creek (WBID 1946) is not currently listed for zinc in water.

The Department will evaluate the need to take action on the TMDLs for Indian Creek or Courtois Creek upon final approval of the 2020 303(d) list by the Missouri Clean Water Commission and EPA. TMDLs are protective of water quality regardless of the status (impaired or unimpaired) of the water body or water bodies for which the TMDL is applicable.

II. Metropolitan St. Louis Sewer District (MSD)

MSD provided comments in regard to several streams:

1. Little Antire Creek (WBID 4115) – MSD provided data for 2017, 2018, and 2019 that indicate the WQS for the Whole Body Contact Recreation class B use is currently being supported.
2. The Department's assessment of River des Peres (WBID 1710) does not reflect the 2017 and 2018 data provided by MSD.
3. The Department's assessment of Spring Branch (WBID 5007) does not reflect the 2017 and 2018 data provided by MSD.
4. The Department's assessment of Watkins Creek (WBID 1708) does not reflect the 2017 and 2018 data provided by MSD.
5. MSD proposed that *Escherichia coli* impairment for Gravois Creek (WBID 4051) is addressed through the TMDL for the Gravois Creek watershed.

Department Response

The Department appreciates the comments provided by MSD.

Comment 1

The Department reassessed Little Antire Creek including the data provided by MSD and agrees that data indicate that WQSs are now being met. The Department proposes to delist Little Antire Creek (WBID 4115) for *E. coli*.

Comments 2 – 4

The Department apologizes for the error and will add the data to our database. As noted by MSD, the data does not change the impairment status of these streams.

Comment 5

Per federal regulations at 40 C.F.R. § 130.7(c)(1), states shall establish TMDLs for all identified water quality-limited segments. The Gravois Creek TMDL approved by EPA on January 16, 2018, calculates the *E. coli* loading capacities and associated wasteload and load allocations for two water quality-limited segments of Gravois Creek, WBIDs 1712 and 1713. Although the draft TMDL document made available for public review from March 3 to May 2, 2017, did include calculations specific to WBID 4051, this segment was removed from the final document in response to the public comments submitted by MSD. For this reason, WBID 4051 remains identified as a Category 5 impaired water. The Department recognizes that actions implemented to target the loading capacities calculated for Gravois Creek are occurring on a watershed scale and may result in pollutant reductions to the tributary of Gravois Creek. For this reason, the *E. coli* impairment for WBID 4051 has been identified on the 2020 303(d) List as a low priority for TMDL development in order to allow such pollutant reductions to occur. For more information regarding Missouri TMDLs, please contact Mike Kruse, TMDL Unit Chief, at 573-522-4901.

III. Washington University Interdisciplinary Environmental Clinic on behalf of Missouri Coalition for the Environment (MCE)

The Missouri Coalition for the Environment submitted comments that focus on the new nutrient criteria for lakes and the proposed lake listings added under such criteria. MCE identified three major concerns: 1) insufficient data collection; 2) a lack of transparency in the listing methodology and process; and 3) the reconsideration of five lakes that MCE suggests should be added to the list.

Concern 1

MCE commented that the Department's Nutrient Criteria Implementation Plan requires a minimum of 4 samples for each year a lake is considered and provided 4 examples wherein lakes had less than 4 measurements per year. Also noted by MCE were 6 examples of lakes missing measures of Chlorophyll-a (Chl-a), total nitrogen (TN) and total phosphorus (TP), and/or Secchi depth, and 17 examples of lakes with large temporal data gaps wherein impairment thresholds were also exceeded. MCE requests that the Department prioritize data collection from lakes wherein threshold exceedances have occurred recently or at least once in the sampling record. MCE also commented that the amount of data collected on unlisted lakes is insufficient.

Concern 2

MCE requests that the Department provide Excel worksheets for all lakes of the state, whether listed as impaired or not, along with a narrative analysis to clearly explain why each lake was or was not included. MCE requests written descriptions of assessment endpoints, which should include more details on fish kills and/or excessive turbidity. MCE also requests that the Department provide a full list of lakes and water bodies by name and make improvements to the Water Quality Assessment System that would include general accessibility and the inclusion of an ecoregion field. MCE also requests that the data should be compiled into a single Excel file. Additionally, MCE asks for more description of potentially impaired lakes listed in the 305(b) report and requests Excel data and a narrative analysis to be made available for each of these lakes.

Concern 3

Additionally, MCE identified five lakes to be reconsidered for listing, along with explanations for why these lakes should be considered:

1. Jackrabbit Lake (WBID 7391)
2. Shelbyville Lake (WBID 7036)
3. Montrose Lake (WBID 7208)
4. Cameron Lake No. 1 (WBID 7120)
5. Cameron Lake No. 2 (WBID 7121)

Department Response

The Department appreciates the comments made by the Washington University Interdisciplinary Environmental Clinic on behalf of the Missouri Coalition for the Environment (MCE).

Concern 1

The requirement to calculate nutrient concentrations as the geometric mean of a minimum of four representative samples is contained in 10 CSR 7.031(5)(N)4, not the Nutrient Criteria Implementation Plan. In order to assess a lake against the numeric nutrient criteria in 10 CSR 20-7.031(5)(N)4, at least four samples must be collected between May 1 and September 30 under representative conditions. If this data requirement is not met, the lake will be placed in Category 3 of Missouri's 305(b) Report until further information can be collected. Although the Department wishes to have at least four samples for lake assessment, sample collection is often subject to circumstances outside the Department's control (e.g., unsafe weather conditions, flooding, etc.) and therefore this data requirement may not always be met. The collection of Chl-a, TN, TP, and Secchi depth are necessary for assessment, but the Department is not required to collect this data; instead, this is a data requirement for assessment against the criteria. These parameters were important to the development of the criteria, thus the Department cannot properly assess against the criteria when there is missing information.

There are no federal or state statutes or regulations that require the Department to collect water quality samples. However, the Department solicits a multitude of data every year by funding statewide efforts to collect quality-assured water quality samples at lakes. The Department has a cooperative agreement for sample collection with the University of Missouri Limnology Lab through their Statewide Lake Assessment Program (SLAP) and their Lakes of Missouri Volunteer Program (LMVP). SLAP collects samples between May 1 and September 30 from approximately 78 lakes statewide. Of those 78 lakes, 38 have been consistently sampled as part of a long-term data study for assessing water quality and conducting long-term trend analyses; the remaining 40 lakes are rotated every 3-4 years. The Department will work with SLAP to expand monitoring or add priority lakes for additional data collection needs, subject to year to year budget limitations. In addition to SLAP, a large portion of the Department's data is collected through LMVP with lake volunteers. Neither the University nor the Department can control where the public wants to volunteer their sampling efforts. The Department is very appreciative of volunteer efforts and the data they contribute.

The Lake Ecoregion Criteria in 10 CSR 20-7.031(5)(N)1.C.(I) do not explicitly require a minimum number of years of data, but the Lake Site-Specific Criteria 10 CSR 20-7.031(5)(N)1.C.(II) do require a minimum of three years of data. According to the 2020 Listing Methodology Document (LMD): "If a water body has not been listed previously and all data indicating an impairment is older than 7 years, then the water body is placed into Category 2B or 3B and prioritized for future sampling." If more recent data confirms the impairment, then older data is included in the assessment. The LMD is public noticed for every listing cycle. The Department will be accepting comments on the 2022 LMD in the near future.

At present, neither the Department nor the University of Missouri have the capacity nor budget to regularly sample every lake in the state. To the extent that the Department does not have comprehensive water quality data on Missouri lakes, this is largely due to logistical and budgetary constraints. The Department cannot change the amount or types of data collected from past sampling efforts. However, in 2019, the Department began working more closely with the University to expand monitoring to ongoing SLAP efforts. With much of the data used by the

Department to make assessments coming from the University's volunteer program, the Department welcomes the opportunity to coordinate with MCE and the University to find more volunteers to sample lakes. The Department invites MCE to inform its members of volunteer opportunities through the LMVP. Additionally, the Department is prepared to work with any organization to develop a quality assurance project plan (QAPP) to collect additional samples.

Concern 2

The Department has provided assessment worksheets for each water body listed on the 303(d) list. Each ecoregional lake nutrient assessment worksheet has been color coded, and exceedances of the criteria, thresholds, and eutrophication factors are highlighted. Included at the bottom of each assessment worksheet is an explanation of the criteria used and justification for the impairment listing. The LMD contains information on how each piece of the criteria will be assessed. The Department is open to suggestions for improving the transfer of information of interest to the public and how that appears on the assessment worksheets. If the LMD is not clear in its presentation of the information, the Department is open to suggested language to clarify the assessment process. As noted by MCE, the Department provides public access to the data used for assessments. If members of the public are interested in data for a specific water body, the Department can provide the data in spreadsheet format for that water body and explain the assessment process. The Department will look at improving the public data search web application to correct any issues. The Department is looking into newer technologies that may provide better access for the public. Water quality data can also be requested by emailing Robert.Voss@dnr.mo.gov.

A shapefile containing all the lakes in Missouri that are included in the Missouri Use Designation Dataset (MUDD) can be downloaded from the Missouri Spatial Data Information Service (MSDIS), available at <https://data-msdis.opendata.arcgis.com/datasets/mo-2019-lake-numeric-nutrient-criteria-watersheds/data>. This dataset contains the WBID, size, whether or not the lake has site-specific criteria, and the percent of the lake's watershed that is in each ecoregion. For assessment purposes, the Department applied the criteria for the ecoregion comprising the majority of the watershed (e.g., if 51 percent of a lake's watershed is in the Ozark Border ecoregion and 49 percent is in the Plains ecoregion, Ozark Boarder criteria were used for assessment).

In accordance with the LMD, the Department should provide a statement on the assessment worksheet when using data more than seven years old in assessment decisions. In the case of assessment worksheets for the ecoregional lake nutrient criteria, the Department included data older than seven years when necessary to ensure three years of data that met the requirements. If all of the data was older than seven years, then the data should not have been used for impairment decisions, but may still be used to categorize the lake for future data needs. All data used for assessment, including the date of sampling, is included in the assessment worksheets. The Department will make a greater effort to include a written justification when using data older than seven years in assessment worksheets.

Lakes included as potentially impaired in the 305(b) Report are lakes that met the LMD requirements to be placed into categories 2B or 3B only. These waters mainly lack the data

necessary to come to a confident assessment conclusion or do not meet the LMD definition of an impaired water, but the Department has reason to believe that water quality concerns remain. The Department can provide the water quality data for those waters upon request. The Department will prioritize collection of more data on waters that show impairment based on data that is too old to use.

Concern 3

1. Jackrabbit Lake (WBID 7391)

Jackrabbit Lake does not meet the impairment criteria. While the Chl-a values do increase over time from 2011 to 2017, there is not enough data to account for climatic variation. The Department, therefore, cannot evaluate possible bias in the current data. If data had been collected between 2011 and 2017, it is undetermined whether this data would have exceeded the Plains ecoregional criteria as well. While Jackrabbit Lake does exceed the screening thresholds for TN, TP, and Secchi depth, neither of the endpoints of Chl-a/TP ratio and inorganic suspended sediment are met, nor are algal toxin counts exceeded. Therefore, the lake does not presently meet the criteria for impairment.

2. Shelbyville Lake (WBID 7036)

The only available data for Shelbyville Lake are from 2010 and 2014, and no Chl-a data are available for 2010. These data cannot appropriately account for the climatic variability of the site. While Chl-a data in 2014 exceeds the Plains ecoregional criteria, and the screening thresholds are exceeded for inorganic suspended sediment, Secchi depth, TN, and TP, the Chl-a/TP ratio is greater than 0.15. Therefore, the site does not meet the LMD definition of an impaired water.

3. Montrose Lake (WBID 7208)

MCE is correct that Montrose Lake has exceeded the Plains ecoregion Chl-a criteria in the last three years of available data. However, the last three years of available data are from 2008, 2007, and 2005. All of these dates are older than seven years and therefore may not be representative of current lake conditions. While these data do not meet the LMD requirements for listing, the Department has prioritized this lake for additional monitoring.

4. Cameron lake No. 1 (WBID 7120)

The only available data for Cameron Lake No. 1 is from 2016 and 1996. Chl-a data from 2016 exceed the numeric nutrient criteria. Chl-a data from 1996 do not exceed the criteria, and additional data do show elevated levels of mineral turbidity. However, the Department cannot definitively say that the 1996 data represents current conditions. While these data do not meet the LMD requirements for listing, the Department has prioritized this lake for additional monitoring.

5. Cameron Lake No. 2 (WBID 7121)

Similar to Cameron Lake No. 1, the only two years of available data for Cameron Lake No. 2 are 2016 and 1996. Chl-a data from 2016 exceed the numeric nutrient criteria. Chl-a data from 1996 do not exceed the criteria, and additional data do show elevated levels of mineral turbidity. However, the Department cannot definitively say that the 1996 data represents

current conditions. While these data do not meet the LMD requirements for listing, the Department has prioritized this lake for additional monitoring.

Additionally, MCE pointed out that King Lake (WBID 7112) was listed using data that was all collected more than seven years prior to assessment. This listing was in error and does not follow the LMD, therefore the Department will remove King Lake from the proposed 303(d) list. However, the Department intends to collect additional data from this lake for use in future assessments.

IV. City of Kansas City

Kansas City Water Services provided comments regarding Brush Creek (WBID 3986) and the PAHs impairment. Kansas City Water Services commented that two of the three sites used for assessment are in Kansas, rather than Missouri. The City comments that the listing is also based on a probable effects concentration (PEC) threshold that is not a regulatory standard, but rather intended for weight of evidence to warrant further investigation. The Missouri site is indicated by the City to be below the recommended PEC values for impairment. The City therefore requests that the stream be reassessed using only data from Missouri.

Department Response

In accordance with the LMD, PAH toxicity is assessed by comparing the sum of the geometric means for all PAH compounds to 150 percent of the recommended PEC value for total PAHs. The Department has reassessed the PAHs impairment on Brush Creek (WBID 3986) and determined that the sum of the geometric means for all PAHs compounds at the Missouri site (site code 3986/5.1) is below the 100 percent recommended PEC value for total PAHs (22.8 mg/kg). Total PAH values at the Kansas sites suggest that total PAHs in the stream are decreasing as the water body flows into Missouri. The Department proposes to delist Brush Creek for PAHs in sediment based on this reassessment.

V. City of Independence

The City of Independence requests that the Department re-evaluate *E. coli* impairment for the following sites by calculating geometric means without the inclusion of storm flow samples:

1. Little Blue River (WBID 0422)
2. Little Blue River Tributary (WBID 4107)
3. Burr Oak Creek (WBID 3414)
4. Crackerneck Creek (WBID 3962)
5. Rock Creek (WBID 4106)
6. Spring Branch (WBID 5004)

The City of Independence cited a joint agreement with the United States Geological Survey (USGS) in order to obtain data during storm events. The City and USGS provided data for some of these events, along with geometric means that were calculated with and without storm flow

samples for Little Blue River, Rock Creek, and Spring Branch. Based on these calculations, the City suggests that a significant bias in *E. coli* counts is present when storm flow data is included.

Department Response

The Department appreciates the comments made by the City of Independence. Missouri's WQSs do not contain a high flow or storm flow exclusion to the recreational use criteria. The data used for assessment contained samples from both storm flow and non-storm flow conditions. The Department will not exclude data points purely on the basis of storm flow exceedance, especially when such data shows bacterial contamination issues during storm flow events. The Department maintains that the listings of Little Blue River (WBID 0422), Little Blue River Tributary (WBID 4107), Burr Oak Creek (WBID 3414), Crackerneck Creek (WBID 3962), Rock Creek (WBID 4106), and Spring Branch (WBID 5004) are appropriate.

VI. City of Springfield

The City of Springfield provided comments on the TMDL schedule for Pearson Creek (WBID 2373) and Wilsons Creek (WBID 2375), asking the Department to lower the priority from medium to low and revise the schedule to greater than 10 years. The City also provided comments requesting the Department delist North Branch Wilsons Creek for zinc in sediment, noting that the 2020 LMD states additional biological data is needed, and this data is lacking from the assessment.

Department Response

The Department appreciates the City's efforts to improve water quality in Pearson and Wilson creeks. At this time, the Department agrees to lower the priority from medium to low and revise the schedule to 11 years. The Department intends to evaluate progress during the development of future 303d lists and 305b reports. Additionally the Department would like to invite the City to meet with us in order to discuss the plan moving forward to help the Department evaluate progress toward addressing the impairments. Please contact Mike Kruse, TMDL Unit Chief, at 573-522-4901 or via email at Michael.Kruse@dnr.mo.gov to set up a time to discuss.

North Branch Wilsons Creek was initially placed on the 2014 303(d) List due to levels of zinc in sediment above 150 percent of PEC. The City cites the 2020 LMD needing biological data as part of the weight of evidence to confirm the toxicity of zinc in sediment to aquatic life. While biological data is a requirement for placing any new waters on the 303(d) list for toxics in sediment, the water body has already been listed and there is no evidence to show that the zinc is not causing toxicity. In the absence of biological data or additional sediment data, the Department will maintain North Branch Wilsons Creek on the 303(d) list for zinc in sediment.